

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 March 2000 (02.03.2000)

PCT

(10) International Publication Number
WO 00/10914 A1

(51) International Patent Classification⁶: C01B 17/22,
C10G 9/14, C10L 1/10, 5/00

KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,
MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD,
SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ,
VN, YU, ZA, ZW.

(21) International Application Number: PCT/US99/19091

(22) International Filing Date: 20 August 1999 (20.08.1999)

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,
BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/137,283 20 August 1998 (20.08.1998) US

Published:
— With international search report.

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(48) Date of publication of this corrected version:
14 December 2000

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(15) Information about Correction:
see PCT Gazette No. 50/2000 of 14 December 2000, Sec-
tion II

(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ,
BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE,
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: PRODUCTION AND USE OF A PREMIUM FUEL GRADE PETROLEUM COKE

(57) Abstract: A premium "fuel-grade" petroleum coke is produced by modifying petroleum coking technology. Coking process parameters are controlled to consistently produce petroleum coke within a predetermined range for volatile combustible material (VCM) content. The invention includes a process of producing a coke fuel, the method comprising steps: (a) obtaining a coke precursor material derived from crude oil and having a volatile organic component; and (b) subjecting the coke precursor material to a thermal cracking process for sufficient time and at sufficient temperature and under sufficient pressure so as to produce a coke product having volatile combustible materials (VCMs) present in an amount in the range of from about 13 % to about 50 % by weight. Most preferably, the volatile combustible materials in the coke product typically may be in the range of from about 15 % to about 30 % by weight. The present invention also provides methods for (1) altering the coke crystalline structure, (2) improving the quality of the coke VCM, and (3) reducing the concentration of coke contaminants. Fuels made from the inventive coke product and methods of producing energy through the combustion of such fuels are also included. Finally, novel environmental control techniques are developed to take optimal advantage of the unique characteristics of this upgraded petroleum coke.

WO 00/10914 A1

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